

Appl. No. 10/039,842
Amendment Date June 12, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. -26. (Canceled)

27. (Original) A biocompatible device which communicates electrical signals with tissue in a living body, comprising:

an integrated circuit, said integrated circuit comprising a semiconductor substrate having at least one surface on which electronic circuitry is formed;

electrodes for contacting the living tissue which are formed on said at least one surface of said semiconductor substrate;

means for electrically connecting said stimulator electrodes with said electronic circuitry formed on said at least one surface of said semiconductor substrate;

an ultra-nanocrystalline diamond coating that covers all areas of said at least one surface of said semiconductor substrate, except for selected portions of said stimulator electrodes; and

means for making electrical connection with and providing operating power to said electronic circuitry formed on said at least one surface of said semiconductor substrate.

28. (Previously Presented) A biocompatible device which communicates electrical signals with tissue in a living body, comprising:

an integrated circuit, said integrated circuit comprising a semiconductor substrate having at least one surface on which electronic circuitry is formed;

electrodes for contacting the living tissue which are formed on said at least one surface of said semiconductor substrate;

means for electrically connecting said stimulator electrodes with said electronic circuitry formed on said at least one surface of said semiconductor substrate;

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a diamond coating that covers all areas of said at least one surface of said semiconductor substrate, except for selected portions of said stimulator electrodes; and means for making electrical connection with and providing operating power to said electronic circuitry formed on said at least one surface of said semiconductor substrate.

29. – 36. (Canceled)

37. (New): The biocompatible device according to claim 27 wherein said integrated circuit comprises a sensor.

38. (New) The biocompatible device according to claim 27 wherein said integrated circuit comprises a stimulator.

39. (New) The biocompatible device according to claim 27 wherein said ultra-nanocrystalline diamond coating is approximately constant in thickness over uneven portions of said device to provide a smooth coating with rounded edges.

40. (New) The biocompatible device according to claim 27 wherein said ultra-nanocrystalline diamond coating is patterned by photolithography.

41. (New) The biocompatible device according to claim 27 wherein said ultra-nanocrystalline diamond coating is patterned by selective seeding.

42. (New) The biocompatible device according to claim 27 wherein said ultra-nanocrystalline diamond coating is patterned by oxygen etching.